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EXAMINER	
ABDULSELAM, ABBAS I	
ART UNIT	**PAPER NUMBER**
2677	

DATE MAILED: 11/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/904,960	KELLIS, JAMES T.	
	Examiner	Art Unit	
	Abbas I. Abdulselam	2677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-11 and 15-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-11 and 15-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to an interview conducted on 09/30/05. Claims 2-11 and 15-19 are pending. Claims 1 and 12-14 are canceled.

Response to Arguments

2. Applicant's arguments, with respect to the rejection(s)of claim(s) 2-11 and 15-19 under U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Zettl et al. (USPN 6057637).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita et al. (USPN 6,222,323) in view of Hojabri et al. (USPN 6,166,579) and Zettl et al. (USPN 6057637).

As to claims 2, and 11,Yamashita et al. discloses an apparatus (matrix of light emitting elements organic EL column 1, lines 25-27) which provides a uniformly varying brightness

control for a display screen, comprising: a brightness control device (brightness setter 10, column 7, lines 4-5, figure 8), a brightness control circuit (controller 9 coupled to brightness setter 10 as shown in figure 8) responsive to an analog input for providing an output current to the display screen (display section 6, column 4, lines 59-60 , electric current and column 4, lines 53-54) so as to control brightness of said display screen (controller 9 controls anode controller 7 and cathode controller 8 based on brightness level B, column 8, lines 41-43).

However, Yamashita fails to teach a digital input representative of a state of the brightness control device.

Hojabri on the other hand teaches a digital input representative of a state of the brightness control device (digital input signal 47, column 4, lines 42-44, 6 bit Bias Brightness Control as shown in figure 6).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the apparatus of Yamashita et al. then operate the brightness control device corresponding a digital input signal as taught by Hojabri et al. to obtain the apparatus Yamashita et al. modified by Hojabri et al. because it would allow the user to control the brightness of the display apparatus with more accuracy.

However, Yamashita et al. and Hojabri fail to teach that the output current is exponentially related to the digital input.

Zettl on the other hand teaches as shown in FIG. 3 an I-V curve for field emission with distinct emission regions, and illustrates an emission current (I) versus sample-to-grid bias voltage (V) characteristic that was obtained using an apparatus illustrated in FIG. 2 (a field

emission experiment) such that as the voltage increases the current again rises exponentially (col. 7, lines 21-41).

Therefore, it would have it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yamashita's display system shown in Fig. 8 to adapt Zettl's exponential I-V curve as illustrated in Fig. 3 because the use of an exponential I-V curve helps function an emission display device as taught by Zettl (col. 9, lines 33-49).

As to claim 3, Zettl teaches the digital input further comprises a plurality of digital inputs (col. 8, lines 20-38).

As to claim 4, Zettl teaches the output current further comprises a plurality of output currents (col. 8, lines 20-38).

4. Claims 5- 10, 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita et al. (USPN 6222323) in view of Hojabri et al. (USPN 6166579) Ahmed (USPN 4417240) and Zettl et al. (USPN 6057637).

As to claims 5, 9 and 15, Yamashita et al. teaches an apparatus (display device with matrix of light emitting elements organic EL column 1, lines 25-27) and associated method, which provides a uniformly-varying brightness control for a display screen, comprising: an input (external signal from keyboard, column 5, lines 1-2); a current mirror circuit connected to an LED array (current sources Jl-Jm shown in figure 5) so as to provide current to the LED array that is exponentially related to the digital input (Fig. 3 of Ando et al.).

However Yamashita et al. fails to teach, "an attenuator which receives the digital input and a reference voltage and provides an attenuated voltage output based on the digital input".

Hojabri et al. on the other hand teaches an attenuator (digitally controlled signal attenuator circuit, see Abstract, column 4, lines 16-17), which receives the digital input, and a reference voltage (DC reference voltage 17, column 3, lines 60-61) and provides an attenuated voltage output based on the digital input.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the apparatus Yamashita et al. then add an attenuator circuit as taught by Hojabri et al. to obtain the apparatus modified by Hojabri et al; because it will help the operator to control brightness at different settings of attenuation.

Note also Hojabri et al. teaches digital input signal varied in value in accordance with the desired brightness setting (column 4, lines 43-44).

However, Yamashita modified by Hojabri et al. fails to teach a voltage-to-current converting amplifier circuit.

Ahmed on the other hand teaches a voltage-to-current converting amplifier circuit (column 3, lines 31-33).

It would have been obvious to a person of ordinary skill in the art to utilize the apparatus Yamashita et al. modified by Hojabri et al. then couple a voltage-to-current converting amplifier circuit as taught by Ahmed to obtain the apparatus Yamashita et al. modified by Hojabri et al. and Ahmed because it would allow proper driving of the aforementioned LED array.

However, Yamashita modified by Hojabri and Ahmed fail to teach providing current to the LED array that is exponentially related to the digital input.

Zettl on the other hand teaches as shown in FIG. 3 an I-V curve for field emission with distinct emission regions, and illustrates an emission current (I) versus sample-to-grid bias voltage (V) characteristic that was obtained using an apparatus illustrated in FIG. 2 (a field emission experiment) such that as the voltage increases the current again rises exponentially (col. 7, lines 21-41).

It would have been obvious to a person of ordinary skill in the art to utilize the apparatus Yamashita et al. modified by Hojabri et al. and Ahmed and then incorporate the use of exponential I-V curve as illustrated by Zettl to obtain the apparatus Yamashita et al. modified by Hojabri et al. Ahmed and Zettl because it would help function an emission display device.

As to claims 6 and 10, Hojabri teaches the digital input further comprises a plurality of digital inputs (plurality of input signals, column 3, lines 11-12, 6 bits Bias Brightness controlled figures 4 and 6).

As to claim 7, Yamashita teaches the current mirror circuit comprises a plurality of current mirror circuits (current sources J1 through Jm as shown in figure 5), each of said plurality of circuits connected to the LED array so as to provide current that is exponentially related to at least one of the plurality of digital inputs to a respective portion of the LED array (also see Zettl's Fig. 3)

As to claim 8, Yamashita et al. modified by Hojabri et al. and Ahmed and Zettl fail to teach an input trimming resistor network. However, trimming resistor network is well known in the art for obtaining a desired characteristic. It would have been obvious to a person of ordinary

skill in the art to utilize the apparatus Yamashita et al. modified by Hojabri et al. Ahmed and Zettl then make use of trimming resistor network in order to obtain a desired resistance value.

As to claim 16, Yamashita teaches the means for providing at least one output current comprises means for providing a plurality of output currents (Yamashita et al. teaches controller 7 providing a plurality of current sources J1 through Jm shown in figure 6)

As to claim 17, Hojabri teaches the means for applying a digital input comprises means for applying a plurality of digital inputs to the circuit (digitally controlled signal attenuator, see abstract, 6 bits Bias as shown in figure 6)

As to claim 18, Yamashita teaches each of at least two of the plurality of digital inputs is related to at least one of at least two of the plurality of output currents (two current sources J1/J2 shown in figure 5, also Hojabri et al. teaches 6 bits Bias as shown in figure 6).

As to claim 19, Yamashita teaches each of the at least two of the plurality of output currents (currents supplied to anode 2, column 5, lines 9-10, current sources J1 and J2 shown in figure 6) defines a control signal (signals of displaying data and characters on display 6, column 5, lines 4-5) which controls brightness of a different proportion of the display screen (different pixels comprising light emitting elements are illuminated in display section 6 shown in figure 6).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following art is cited for further reference.

Carasso et al. (USPN 4402014) teach a current voltage characteristic which has an exponential variation as is shown in FIG. 3 by the curve A.

Ishizuka et al. (USPN 6707438) illustrates as shown in Fig 24 a plot showing the voltage V--current I characteristic of an EL element under duration of light emission.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abbas I. Abdulselam whose telephone number is (571) 272-7685. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abbas Abdulselam

Examiner

Art Unit 2677

October 24, 2005

AMR A. AWAD
PRIMARY EXAMINER